



## **eLEXNET Program and Interoperability Overview**

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# eLEXNET Origins



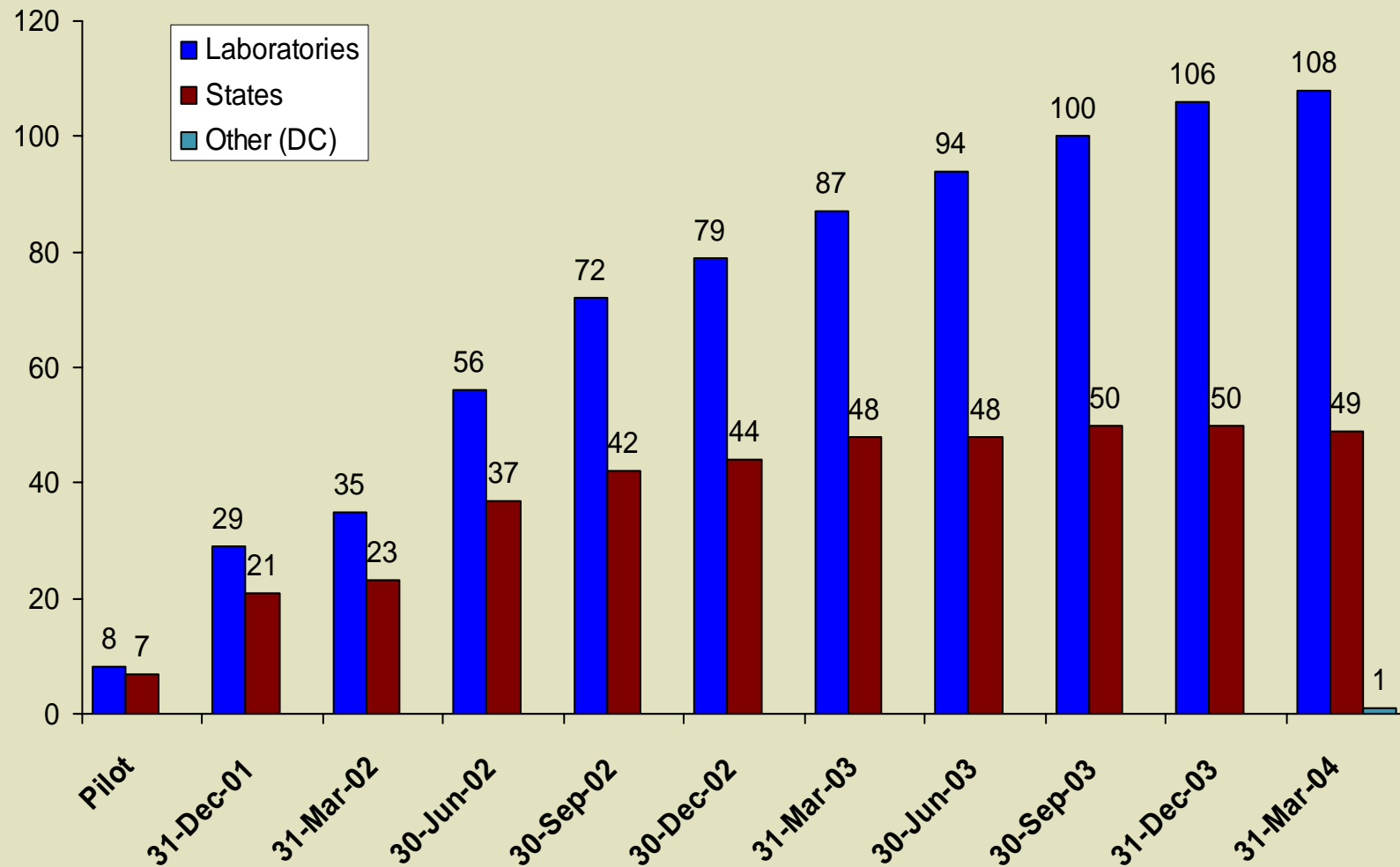
- ▶ FDA and USDA participated in two Federal-State meetings in 1998 that identified challenges for sharing food safety data among Federal, state and local agencies:
  - ❑ Food safety laboratories capture test data in multiple, disparate electronic systems – or maintain data on paper only
  - ❑ Food safety agencies rely on phone or fax to communicate about laboratory findings
  - ❑ Laboratories have limited personnel resources and outdated infrastructures
  - ❑ September 2000 *E.coli* O157:H7 Pilot Program involved federal, state and local laboratories; agriculture and public health

# What is eLEXNET?



- ▶ The Electronic Laboratory Exchange Network (eLEXNET) is a seamless, integrated, secure network that allows multiple government agencies engaged in food safety activities to compare, communicate, and coordinate findings of laboratory analyses.
- ▶ eLEXNET enables health officials to assess risks, analyze trends and provides the necessary infrastructure for an early-warning system that identifies potentially hazardous foods.
- ▶ eLEXNET is the data sharing and collaboration tool used by laboratories participating in the Food Emergency Response Network (FERN).
- ▶ eLEXNET is a program funded by the Food and Drug Administration (FDA) with support from both the U.S. Department of Agriculture (USDA) and the Department of Defense (DoD).

# eLEXNET Participation Status



Of 108 laboratories in 49 states voluntarily participating in eLEXNET, 66 are exchanging data

# Who participates in eLEXNET?



- ▶ Government food testing laboratories
  - ❑ Federal: FDA, USDA, DoD, Customs
  - ❑ State: Public Health, Agriculture, Environmental, Veterinary Diagnostic
  - ❑ Local: Public Health
- ▶ Data Exchange and Data Entry laboratories
  - ❑ Participants with Laboratory Information Management Systems (LIMS) map database elements to eLEXNET elements and transfer the data electronically via a Java-based utility installed on their network
  - ❑ Participants without a LIMS use the Data Entry module to enter all laboratory information directly into eLEXNET

# How much data is in eLEXNET?

- ▶ eLEXNET contains more than 200,000 food sample test records ...
  - ☐ *Aflatoxin B1, B2*
  - ☐ *Aflatoxin B1*
  - ☐ *Aflatoxin B2*
  - ☐ *Amaranth 16185 (Former FD&C Red #2)*
  - ☐ *Bacillus cereus*
  - ☐ *Campylobacter jejuni*
  - ☐ *Campylobacter spp.*
  - ☐ *Chlortetracycline*
  - ☐ *Decoquinat*
  - ☐ *Escherichia coli, Enterohemorrhagic (EHEC)*
  - ☐ *Escherichia coli, Enteropathogenic (EPEC)*
  - ☐ *Escherichia coli (Typical)*
  - ☐ *Fast Red E 16045 (Carmoisine B)*
  - ☐ *FD&C Blue #1 42090 (Brilliant Blue FCF)*
  - ☐ *FD&C Red #3 45430 (Erythrosine)*
  - ☐ *FD&C Red #40 16035 (Allura Red AC)*
  - ☐ *FD&C Yellow #5 19140 (Tartrazine)*
  - ☐ *FD&C Yellow #6 15985 (Sunset Yellow FCF)*
  - ☐ *Fumonisin*
  - ☐ *Lasalocid*
  - ☐ *Listeria monocytogenes*
  - ☐ *Listeria spp.*
  - ☐ *Monensin*
  - ☐ *Penicillin G Benzathine (Penicillin Subgroup)*
  - ☐ *Penicillin G Procaine (Penicillin Subgroup)*
  - ☐ *Ponceau 4R 16255 (C.I. Acid Red 18)*
  - ☐ *Salmonella spp.*
  - ☐ *Shigella spp.*
  - ☐ *Staphylococcus aureus*
  - ☐ *Sulfathiazole*
  - ☐ *Sulfur Dioxide*
  - ☐ *Tylosin*
  - ☐ *Unidentified Red Color*
  - ☐ *Vibrio fluvialis*
  - ☐ *Vibrio parahaemolyticus*
- ▶ and more than 40 product industry categories: Cheese/cheese products, Fishery/seafood products, Fruit/fruit products ...
- ▶ and over 35,000 imported products tested.

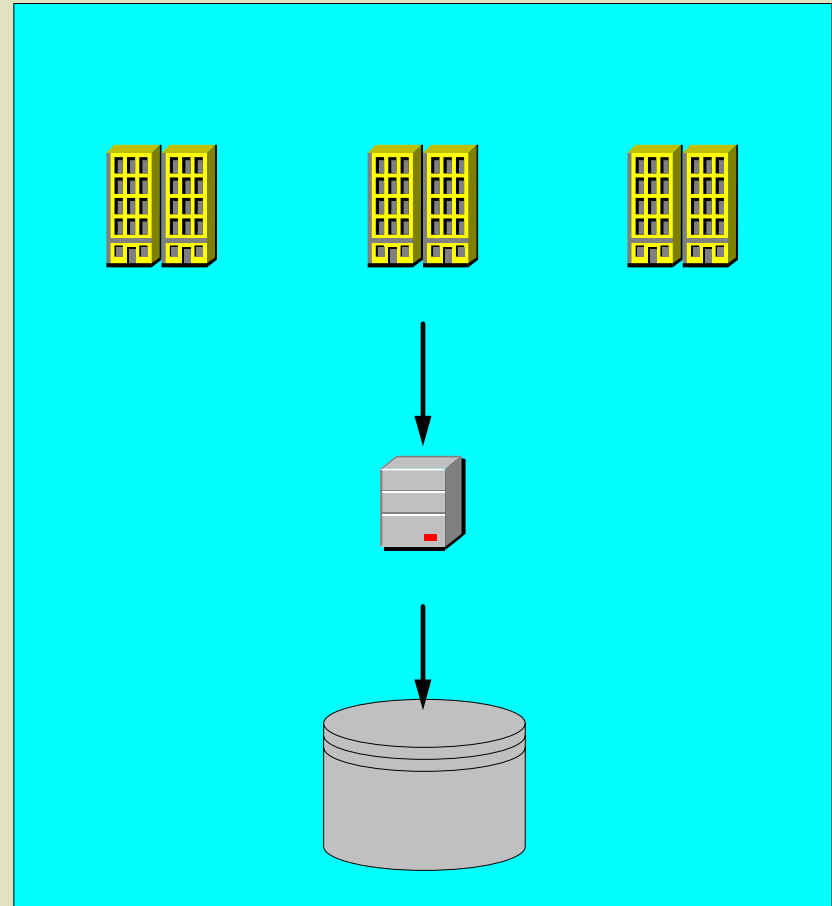
# Current State of Data Exchange

**Export Into XML:** Laboratory records from participating Laboratory Information Systems (LIMS) are exported into an Extensible Markup Language (XML) file for transfer.

**Secure Transmission:** Laboratories transfer data files to the eLEXNET database via HyperText Transfer Protocol over Secure Socket Layer (HTTPS). The encrypted transmission ensures the data is secure from unauthorized viewers.

## HL7 Exchange:

- ☐ Laboratories are NOT sending laboratory data in an HL7 message format.
- ☐ eLEXNET cannot accept laboratory data in HL7 message format





# Interim State of Data Exchange

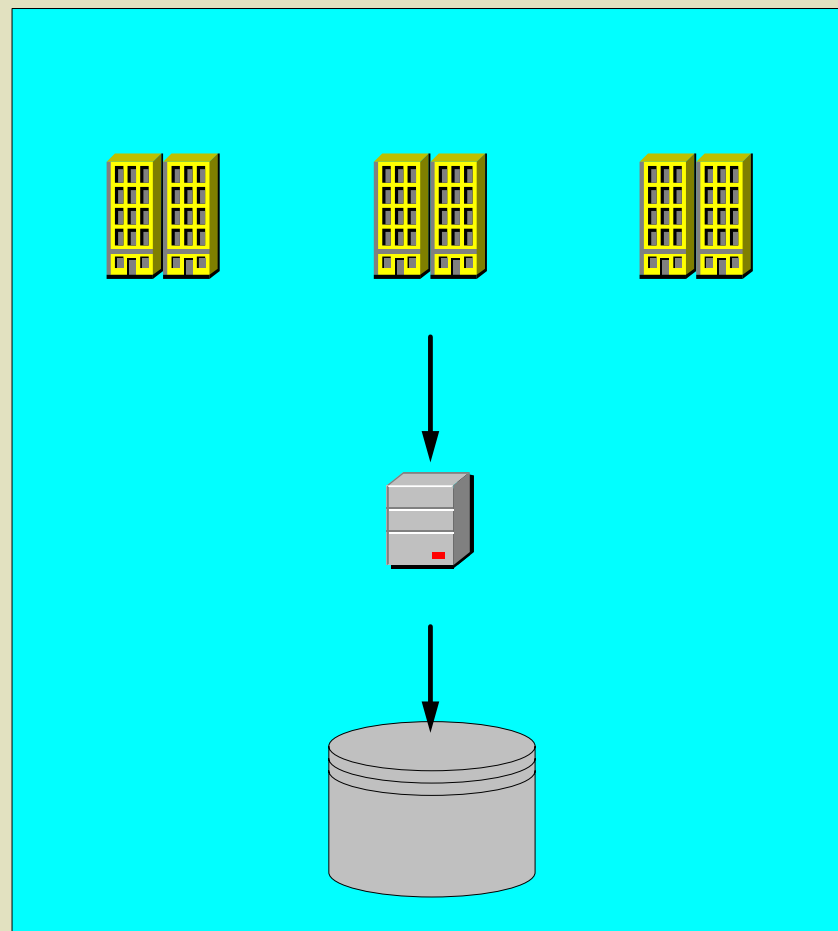
## HL7 Enabled Exchange:

- ❑ Participating laboratories having HL7 capabilities may send HL7 messages
- ❑ eLEXNET application will be upgraded to accept and process the HL7 messages

## Backward Compatibility:

Participating laboratories NOT having HL7 capabilities may continue sending current XML message

**Secure Transmission:** Laboratories transfer data files to the eLEXNET database via HTTPS



# Future State of Data Exchange

## HL7 Enabled Exchange:

- ☐ Participating laboratories having HL7 capabilities may send HL7 messages
- ☐ eLEXNET application will be upgraded to accept and process the HL7 messages
- ☐ eLEXNET will communicate back to the labs
  - Acknowledgement of message receipt
  - Message processing result (error / success)
- ☐ eLEXNET will be able to exchange data with other federal systems using HL7

**Backward Compatibility:** Participating laboratories NOT having HL7 capabilities may continue sending predefined XML message

**Interoperable Transmission:** eLEXNET will provide secure, flexible transport for exchanging HL7 messages via Web Services over HTTPS

